

## Ultra Large Core High Energy Fiber Amplifier, Phase I

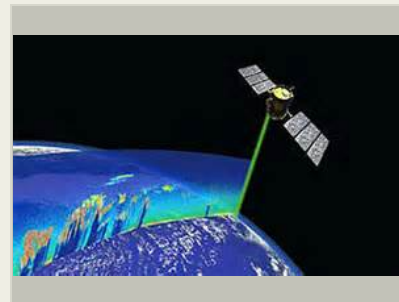
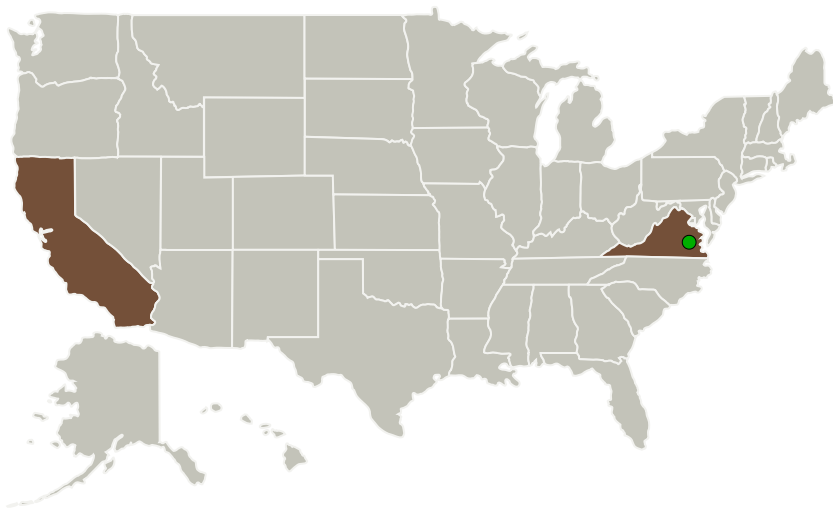
Completed Technology Project (2015 - 2016)



## Project Introduction

Laser transmitters operating at a pulse repetition rate of 20 Hz to 50 Hz and with pulse energy from 30 - 50 mJ have been considered to be an enabling technology for CO<sub>2</sub> measurement and optical communications. PolarOnyx proposes a novel approach targeting to make reliable high energy ultra large core fiber amplifier at 1.57 micron and employing our proprietary technologies in specialty fibers, spectral shaping and pulse shaping techniques. At the end of Phase 1, and simulation study will be carried out and feasibility experiment will be demonstrated in laying out the pathway towards over 30 mJ high energy. A prototype will be demonstrated at the end of Phase II.

## Primary U.S. Work Locations and Key Partners



Ultra Large Core High Energy Fiber Amplifier, Phase I

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Organizations Performing Work	Role	Type	Location
Polaronyx, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	San Jose, California
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia
Lawrence Livermore National Laboratory(LLNL)	Supporting Organization	R&D Center	Livermore, California

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## Primary U.S. Work Locations

California

Virginia

## Project Transitions

**June 2015:** Project Start

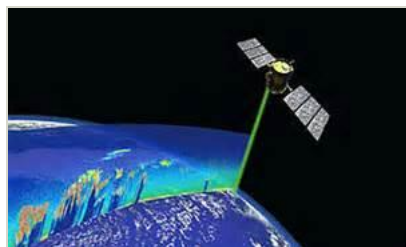
**June 2016:** Closed out

**Closeout Summary:** Ultra Large Core High Energy Fiber Amplifier, Phase I Project Image

### Closeout Documentation:

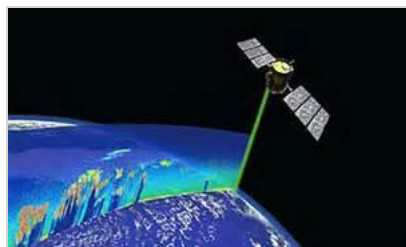
- Final Summary Chart Image(<https://techport.nasa.gov/file/141182>)

## Images



### Briefing Chart Image

Ultra Large Core High Energy Fiber Amplifier, Phase I  
(<https://techport.nasa.gov/image/132075>)



### Final Summary Chart Image

Ultra Large Core High Energy Fiber Amplifier, Phase I Project Image  
(<https://techport.nasa.gov/image/129538>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Polaronyx, Inc.

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

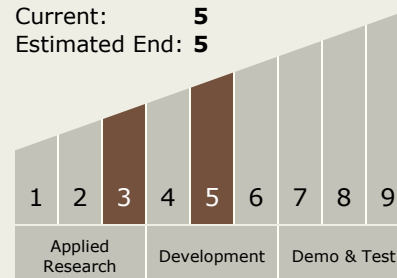
Carlos Torrez

### Principal Investigator:

Jian Liu

## Technology Maturity (TRL)

Start: 3  
Current: 5  
Estimated End: 5



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## Technology Areas

### Primary:

- TX10 Autonomous Systems
  - └ TX10.1 Situational and Self Awareness
    - └ TX10.1.2 State Estimation and Monitoring

## Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System